INITIAL SITE RESPONSE PLAN

LOS ALAMOS
NATIONAL LABORATORY

LOS ALAMOS NATIONAL LABORATORY
MANAGEMENT RESPONSE PLAN
FOR THE
CHEMICAL SAFETY VULNERABILITY FIELD ASSESSMENT

Introduction

Los Alamos National Laboratory (LANL) recently participated in the Chemical Safety Vulnerability Review (CSVR) initiated by Secretary Hazel O'Leary on February 14, 1994. All Department of Energy (DOE) line programs with operational responsibilities were directed to participate in the review. Overall responsibility was assigned to Assistant Secretary for Environment, Safety and Health, Tara O'Toole, who subsequently directed formation of a working group comprised of representatives from operations offices, area offices, and management and operating (M&O) contractors.

The purpose of the review was to identify, characterize, and set priorities for correcting conditions or circumstances involving hazardous chemicals at DOE sites and facilities that might result in (1) fires or explosions from uncontrolled chemical reactions, (2) exposure of workers or the public to chemicals, or (3) releases of chemicals to the environment. In the context of the CSVR, the term hazardous chemical includes hazardous or mixed waste.

Response Summary

A working group, with a core group comprised of DOE staff, was formed to guide the CSVR process. Initially, the core group selected 84 facilities at 29 DOE sites for review. More facilities were added during the field verification phase of the CSVR; the final tally was 146 facilities at 29 DOE sites. A self-assessment questionnaire, developed by the core group, was refined at the first working group meeting held March 1-2, 1994. The five facilities initially selected at LANL completed the self-evaluation questionnaires and submitted them to the core group for evaluation. Based upon review of the self-assessment questionnaires and other information, LANL was selected for CSVR field verification. An experienced team of reviewers (eight technical experts) came to LANL and gathered relevant information from May 16-25. 1994. [For reference, the CSVR field verification team visit was assigned the tracking number 94-30 by LANL Audits and Assessments.]

The five LANL sites that were initially selected for review and completed the self-evaluation questionnaires were:

Location	Description
TA-3-29	Chemistry and Metallurgy Research (CMR) Facility
TA-3-170	Compressed and Liquified Gas Facility (Gas Plant)
TA-16-340/342	Explosives Development and Processing Facility
TA-33-86	High Pressure Tritium Laboratory (HPTL)
TA-54	Waste Storage Facilities

In order to gather other essential or relevant information during the field verification, four additional LANL sites were reviewed:

Location	Description
TA-3-30	General Warehouse Building
TA-3-31	Chemical Warehouse Building (VWR Receiving)
TA-46-339	Wastewater Treatment Facilities
TA-54-1008	Well-Water Chlorination Station, Pajarito Booster No.2

The team identified three chemical safety vulnerabilities at the Laboratory. All three were assigned a medium priority and a short-term timeframe. The definitions for these terms are:

PRIORITY

High — Consequences that would cause death or irreversible injury to workers or the public or would cause environmental damage that would be irreversible or very costly to remediate.

Medium — Not specifically defined.

Low — Consequences that would consist of reversible injuries, illnesses, or environmental damages.

TIMEFRAME

Immediate — Any chemical safety vulnerability that could result in immediate consequences.

Short-term — Any chemical safety vulnerability at a facility in which there is a significant chance of a consequence occurring within a 3-year timeframe as a result of chemical degradation, change in mission for the facility, degradation of the containment systems, change in personnel at the facility, or other factors affecting the facility.

Medium-term — Any chemical safety vulnerability at a facility in which there is a significant chance of a consequence occurring within a 3- to 10-year timeframe as a result of chemical degradation, change in mission for the facility, degradation of the containment systems, change in personnel at the facility, or other factors affecting the facility.

Long-term — Any chemical safety vulnerability at a facility in which there is a significant chance of a consequence occurring within a timeframe of more than 10 years as a result of chemical degradation, change in mission for the facility, degradation of the containment systems, change in personnel at the facility, or other factors affecting the facility.

The field verification review was organized into five functional areas:

Symbol	Description
CH	**Identification of chemical holdings**, including the properties of chemicals located at the facility, the characterization of those chemicals, and an analysis of the inventory.
FM	**Facility** (maintenance) **physical condition**, including engineering barriers, maintenance conditions, chemical systems, safety systems, storage, monitoring systems, and hazards identification.
OMS	**Operational control and management systems**, including organizational structure; requirements identification; hazard analysis; procedural adherence; maintenance control; engineering and design reviews; configuration control; safe shutdown plans; and site programs for quality assurance, chemical safety, inventory control, access control, disposal, transportation and packaging, and corrective actions.
HR	**Human resource programs**, including technical competence, staffing, training and qualifications, employee involvement, employee concerns, personnel performance requirements, and visitor and subcontractor access control.
EM	**Emergency management program**, including the emergency response plan, implant consequences, environmental issues, coordination with the community, and community right-to-know issues.

Chemical Safety Vulnerability Review September 1994		
CSVR-LANL-CH-01	**Priority: Medium**	**Timeframe: Short-term**
Significant accumulations of hazardous chemicals and wastes are being stored for prolonged periods, some under unsatisfactory conditions.		
Summary of Vulnerability: A legacy of hazardous chemicals and wastes, resulting from decades of operations, exists at Los Alamos National Laboratory (LANL). Many of these materials are being collected, characterized, stored, and prepared for disposal. Some materials are stored temporarily under less-than-satisfactory conditions that could lead to personnel hazards or environmental releases caused by leakage from corroded tanks, drums, or gas cylinders.		
Response: A principal factor in prolonged storage is the backlog of characterization sampling and analysis. Two actions are presently underway to shorten the time necessary for obtaining waste characterization samples. First, a quality assurance plan has been developed that describes safe sampling protocols under the variety of conditions observed around the Laboratory. Second, a proposed reorganization of the Environmental Protection Group (ESH-8), which is responsible for characterization sampling, will have a smaller, more focused group responsible for collection of waste samples. The issue of sampling analysis turnaround is being addressed by the Environmental Chemistry Group (CST-9); new staff have been hired recently, and an option for subcontracting some analyses, contingent upon funding, will be investigated. The other principal factor prolonging storage is the time needed to negotiate final disposition plans. Although the Field Verification Team noted much progress by the Laboratory (CST-7), waste containers (overpacked drums) remain exposed to the weather and the wastes still lack treatment facilities to comply with the land disposal restrictions. Construction of a storage structure will begin in 1995. Treatment of low-level mixed wastes will be based on a compliance schedule negotiated between EPA and DOE in a recently completed Federal Facilities Compliance Agreement.		

Chemical Safety Vulnerability Review September 1994			
CSVR-LANL-CH-01	**Priority: Medium**		**Timeframe: Short-term**
CH-01 Action #	**Description of milestone**	**Date**	**Responsible Organization**
1	Issue quality assurance plan to address variety of sampling hazards encountered at LANL.	6/94	ESH-8
2	Complete reorganization of ESH-8.	10/94	ESH-8
3	Hire additional/replacement staffing for the collection of samples.	3/95	ESH-8
4	Determine the scope of the problem, define deliverables, and establish contracts with external analytical laboratories to facilitate response to peak demands for analytical service, in collaboration with ESH-8.	10/95	CST-9
5	Complete construction of chemical waste storage building at TA-54.	11/95	CST-7

Chemical Safety Vulnerability Review September 1994		
CSVR-LANL-FM-02	**Priority: Medium**	**Timeframe: Short-term**
The lack of funding could affect the safe cleanup or transition of aging and/or inactive facilities.		
Summary of Vulnerability: Many aging and/or inactive facilities at Los Alamos National Laboratory (LANL) are candidates for transition (e.g., to decontamination and decommissioning). Funding for these facilities is uncertain or not available, and workload changes are contemplated. These circumstances result in an unacceptable level of maintenance and surveillance at facilities in which residual hazardous chemicals may pose a threat to workers, the public, or the environment.		

Chemical Safety Vulnerability Review September 1994		
CSVR-LANL-FM-02	**Priority: Medium**	**Timeframe: Short-term**

Response:
TA-33-86, High Pressure Tritium Laboratory – a transition facility

Responsible Organization: ESA-5

Current Efforts
A specific effort has been underway between the local DOE Facility Representative and DP-652 to move the High Pressure Tritium Laboratory (HPTL) into the EM-60 transition process.

Work in progress is to complete removal of accountable tritium by the end of the fiscal year (FY-94) or shortly thereafter. Once the accountable tritium is removed, the facility will no longer be classified as nuclear, only radiological. This work is being paid for by redirected DP funds. In fact, all work at the facility has been through redirected DP funds since 1989. The rapid decline in funding for weapons work has made planning and resource allocation difficult, and the situation is exacerbated for an inactive facility such as the HPTL.

Future Work
Any decontamination and decommissioning (D&D) work beyond the current fiscal year is contingent upon identifying a source of funding, since this facility is not included on the D&D list for the next 4 to 5 years. However, if funding becomes available, the next phase of work will involve cleanup and removal of the process system. This work is estimated to take about 1 year for completion. It is also anticipated that former employees with corporate knowledge of the facility and process system will be available on a part-time basis for at least another year to assist in the characterization of waste and waste streams. In the interim, routine maintenance and surveillance of the facility will continue.

Chemical Safety Vulnerability Review September 1994			
CSVR-LANL-FM-02	**Priority: Medium**		**Timeframe: Short-term**
FM-02 Action #	**Description of Milestone**	**Date**	**Responsible Organization**
1	Complete removal of accountable tritium.	1/95	ESA-5
2	Implement shutdown plan, with validation by and concurrence of Los Alamos Area Office.	1/95	ESA-5

Chemical Safety Vulnerability Review September 1994		
CSVR-LANL-FM-02	**Priority: Medium**	**Timeframe: Short-term**

Response (continued):
TA-16-340/342, Explosives Development and Processing Building — an aging facility

Responsible Organization: DX-16

Operational: The operating group DX-16 has a proactive system to identify facility maintenance issues immediately. The operating technicians perform documented daily and monthly inspections of all facilities, including functioning safety showers. Additionally, the S-Site Safety Committee performs independent safety inspections every 6 months, and all deficiencies are immediately repaired or tracked until repaired.

Facilities: DX-16 currently spends approximately $36,000 per year for building maintenance in addition to $200,000 in space tax for the LANL Facility, Security, and Safeguards Division. As a result, there is no budget for major improvements. Facility concerns, such as roof leaks, are identified and repaired, and operations are conducted so that chemicals, waste, and equipment would not be damaged by a roof leak. The new LANL Facilities Management Program will allow users to prioritize the use of maintenance funds.

Processing: Operating processing equipment and instrumentation is maintained to be safe and reliable. This is ensured by functioning checks before every operation, SOP operational reviews, and a preventative maintenance program and database maintained by ESA-2. Unused gages, controls, and instrumentation are not maintained or removed until a new system replaces them. Process equipment that is used very infrequently is cleaned and stored, either in place or in a staging area. Restart of processing equipment involves functional tests and refurbishment or replacement to meet modern safety criteria. All new operations are designed with an emphasis on safety and reducing worker exposures.

Near-term Efforts: There are waste minimization projects currently funded to replace the vacuum system and improve solvent condensers. Drawings have been prepared, funding has been allocated, and equipment is onsite. Four of the nine bays that require upgraded processing utilities will have them in the near future. These project costs are being underwritten by the DOE Non-Nuclear Reconfiguration Program which has transferred detonator production from EG&G Mound to LANL. Improvements to ventilation are part of this installation. Work will begin and proceed one bay at a time pending funding allocation from DOE.

Chemical Safety Vulnerability Review September 1994			
CSVR-LANL-FM-02	**Priority: Medium**		**Timeframe: Short-term**
FM-02 Action #	**Description of Milestone**	**Date**	**Responsible Organization**
3	Identify and correct safety inspection findings. Look for trends such as increased or recurring observations related to facility maintenance.	Every 6 months	DX-16
4	Track maintenance tasks and costs.	12/94	DX-16
5	Review current and planned operations to increase worker safety.	1/95	DX-16
6	Complete chiller installation, including solvent condensation.	6/95	DX-16
7	Complete efforts related to relocation of work from Mound to LANL.	1/97	DX-16

Chemical Safety Vulnerability Review September 1994		
CSVR-LANL-OMS-03	**Priority: Medium**	**Timeframe: Short-term**
The absence of a consistent approach to chemical safety at LANL can result in unanticipated chemical risks.		
Summary of Vulnerability: The absence of a consistent and integrated approach to chemical safety at LANL has resulted in improper chemical safety practices. A Laboratory-wide chemical safety policy does not exist, and supporting programs have not been developed in a timely manner.		
Response: **Responsible Organization: ESH-5** The Industrial Hygiene and Safety Group, ESH-5, has work in progress to address this vulnerability. There are corrective actions under two Tiger Team Corrective Action Plans (C-WS-06 and C-WS-08), and a new Laboratory-wide document, entitled *Chemical Safety Program*, has been drafted. Reviews involving employee participation are planned to start about September 1, 1994. Implementation of the corrective actions and the new *Chemical Safety Program* document will unify and make consistent the Laboratory's approach to chemical safety.		

Chemical Safety Vulnerability Review September 1994			
CSVR-LANL-OMS-03	**Priority: Medium**		**Timeframe: Short-term**
OMS-03 Action #	**Description of Milestone**	**Date**	**Responsible Organization**
1	Complete revision of *Chemical Safety Program* document, incorporating employee comments.	4/95	ESH-5
2	LANL formal review completed, changes incorporated, and document officially released through the Controlled Document System.	9/95	ESH-5